

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2004/051345

A. CLASSIFICATION OF SUBJECT MATTER  
 IPC 7 B01D50/00 C10G11/18 B01D45/16

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
 IPC 7 B01D F23J C10G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 556 479 A (BLACK ALAN J ET AL) 3 December 1985 (1985-12-03) column 2, lines 15-52 column 3, line 13 - column 4, line 42 column 6, lines 24-52; figure	1-7,9
X	US 6 551 565 B2 (GILMAN KEVIN R ET AL) 22 April 2003 (2003-04-22) column 2, line 46 - column 3, line 4 column 3, lines 51-60 column 4, line 37 - column 5, line 25; figure 3	1-7
X	US 4 208 384 A (MITCHELL NORRIS W) 17 June 1980 (1980-06-17) column 2, line 61 - column 3, line 50; figure	1-8 -/-

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the International filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*g\* document member of the same patent family

Date of the actual completion of the international search

10 November 2004

Date of mailing of the international search report

19/11/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
 NL - 2280 HV Rijswijk  
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
 Fax: (+31-70) 340-3016

Authorized officer

Maremonti, M

## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/EP2004/051345

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 105 939 A (UOP INC) 25 April 1984 (1984-04-25) page 9, line 14 – page 13, line 13; figure	1-8
A	US 4 286 973 A (HAMLIN ROBERT N ET AL) 1 September 1981 (1981-09-01) column 1, line 46 – column 2, line 24; figure 1	1-9
A	US 4 501 820 A (ALLAN DAVID E ET AL) 26 February 1985 (1985-02-26) column 2, line 36 – column 5, line 42; figure	1-8

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International Application No

PCT/EP2004/051345

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
US 4556479	A 03-12-1985	EP FR WO	0246229 A1 2590804 A1 8703294 A1	25-11-1987 05-06-1987 04-06-1987
US 6551565	B2 06-06-2002	US	2002068031 A1	06-06-2002
US 4208384	A 17-06-1980	NONE		
EP 0105939	A 25-04-1984	EP	0105939 A1	25-04-1984
US 4286973	A 01-09-1981	NONE		
US 4501820	A 26-02-1985	NONE		